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ABSTRACT

In Europe and Central Asia, the poor face three problems: (1) the education system as a whole does not work well, and hence fails to meet their needs; (2) the private cost of education has risen, so that "education," as a commodity, competes with other consumption goods in shrinking household budgets; and (3) the perceived benefits of education (in terms of higher wage earnings) are still low, thereby undermining long-term incentives to invest in education. This paper shows the discrepancy between Central European and former Soviet Union countries in the contribution of "education" in explaining wage earnings inequality. The discrepancy can be explained by factors such as the degree of private sector development and the flexibility of the labor market. Although there remains a "taste" for education in Europe and Central Asia, there is also a risk that low-income groups drop out of the education system and irreversibly fall into poverty. (Contains 27 notes, 7 figures, 9 tables, 4 annexes, and 82 references.) (Author/BT)

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Access to Education for the Poor in Europe and Central Asia

Preliminary Evidence and Policy Implications

SO 033 112

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WORLD BANK TECHNICAL PAPER NO. 511

Access to Education for the Poor in Europe and Central Asia

Preliminary Evidence and Policy Implications

Nancy Vandycke

The World Bank
Washington, D.C.

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Foreword

The preservation of human capital is fundamental to the long term development of Europe and Central Asian countries. It is crucial for future economic growth and vital for the wider process of societal change that underpin economic reforms. While much has been achieved in this area under socialism, there are major deficiencies in the education system that affect much of the population, and especially the poor.

The decline in funding for educational materials, unpaid teachers' wages, and the lack of heat and maintenance for some schools has contributed to a decline in the quality of schooling. Poor people are often the least able to afford rising costs (clothing, textbooks, transportation) of going to school. While the costs of education, both formal and informal, has gone up, the perceived benefits of education—in terms of higher wage earnings—are still low.

At the aggregate level, a major reallocation of public expenditure is needed to ensure that governments can deliver on their commitments to provide universal basic education to the population. Beyond this lies the challenge of bringing the quality of education system up to OECD standards. For the most part, education systems have not been adapted to prepare people for a modern market economy. However, these reforms will partially address questions of differential access of the poor.

To ensure that growth will be inclusive over the long term and to avoid the intergenerational transmission of poverty, ECA countries will need to pay particular attention to preserving the access to education for all and improving the overall service delivery. It is in this context that this paper presents preliminary evidence on the link between poverty and education in the region and addresses key policy questions around that issue.

Annette Dixon
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Abstract

In Europe and Central Asia, the poor faces three problems: 1) the education system as a whole does not work well, and hence fails to meet adequately their needs; 2) the private cost of education has gone up, so that 'education', as a commodity, competes with other consumption goods in shrinking household budgets; and 3) the perceived benefits of education (in terms of higher wage earnings) are still low, thereby undermining long-term incentives to invest in education. The paper shows the discrepancy between Central European and FSU countries in the contribution of 'education' in explaining wage earnings inequality. The discrepancy can be explained by factors such as the degree of private sector development and the flexibility of the labor market. Although there remains a "taste" for education in Europe and Central Asia, there is also a risk that low-income groups drop out of the education system and irreversibly fall into poverty.

Introduction

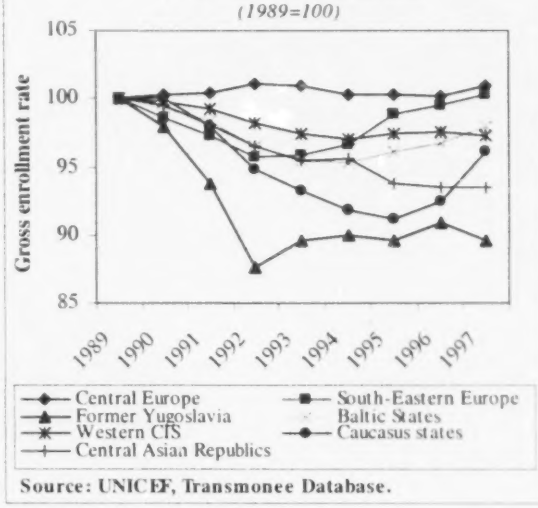
Accomplishments in education were one of the triumphs of communism. The stock of human capital from the socialist period was high compared to other countries at similar levels of economic development. At the start of transition, adult literacy was generally universal; participation and completion rates for children and youth of both genders were high at all levels of education; teachers came to work; students had textbooks; and repetition and drop out rates were low (World Bank, 1999g).

The transition witnessed dramatic changes in the education system of ECA countries. In Bosnia and Herzegovina, Georgia, Azerbaijan and Tajikistan, the education of thousands of children was severely disrupted due to ethnic strife, war and civil unrest. In non-war countries, differences in learning opportunities have emerged. Despite substantial disparities among countries, enrollment rates have sharply fallen and public expenditures to education have shrunk. Preliminary evidence suggest that both trends adversely affected the poor.

In the first half of the 1990s, **enrollment rates** in pre-school education dropped in many countries, with falls of 15-17 percentage points in South-Eastern Europe, the Western CIS, and Central Asia, and by 25 points in the Caucasus. In the CIS as a whole, 32,000 pre-schools closed during 1991-95 and the total number of places fell by a fifth. In (compulsory) basic education[1], Central and South-Eastern European countries have maintained the previous achievement of virtually complete education (figure 1). In contrast, in Western CIS, Caucasus and Central Asia, there is evidence of a sharp deterioration. In Georgia, for example, enrollment rates fell by 11 percentage points over 1989-96, with figures over the same period suggesting falls of as much as 14 and 19 percent in Kazakhstan and the Kyrgyz Republic, respectively. Although the picture at the post-compulsory levels is much more difficult to summarize, there is an overall deteriorating trend in the Caucasus, Central Asia and Western CIS.[2]

Fig 1: Basic Enrollment Rate

(1989=100)



Source: UNICEF, Transmonee Database.

The large drop-out from schools seems to take place among the poor. In Bulgaria, for example, the drop in basic enrollment rates was the sharpest among children in the lowest quintile (World Bank, 1999a). In Moldova, absenteeism among poor children has

[1] *Basic education* refers to primary (child aged 6 to 10 years) and lower secondary schooling (child aged 11 to 15 years). *Upper secondary education* is split into "academic" (general) and vocational/technical tracks (up to the age of 18). *Post-secondary (or post-compulsory) education* includes technical or university qualifications.

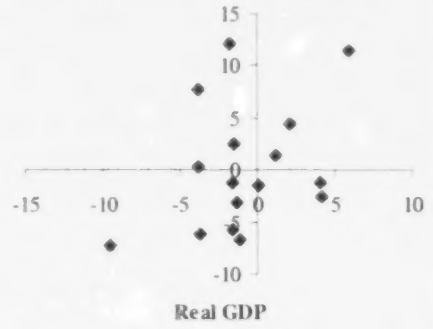
[2] For a detailed review of trends in enrollments rates, see Laporte & Ringold (1997) and Micklewright (1999). There is little systematic evidence on actual attendance in school.

risen, as children drop out to join the labor force (World Bank, 1999d). In the Russian Federation, the proportion of teenagers (aged 17-19) from low-income households in school is more than one-third below that of children of high-income groups; the share in tertiary education is half that of young people of high-income group (UNICEF, 1998).

Enrollment rates and attendance are necessary for learning to take place at school but they are not sufficient. What changes have occurred in the quality of the schooling supplied? Relevant trends on inputs to public sector education can bring some indication. Nominal public expenditures on education have sharply fallen in countries where Gross Domestic Product (GDP) growth has turned negative. the fall over 1989-96 was one-third in the Russian Federation and substantially exceeded this in each of the other five former Soviet republics. Expenditures fell three-quarters or more in Azerbaijan, Georgia and the Kyrgyz Republic[3]. A large number of Europe and Central Asia (ECA) countries reduced their expenditures on education in real terms as well (figure 2)[4].

Fig. 2. Real Education Expenditures and GDP, 1989-97

(average annual percentage change)



Cuts in public expenditures on education have undermined the ability of the education system to provide quality education services to all. The dramatic fall in the quality of education has especially hurt the poor. For example, the cost of textbooks and other school materials appears to be a serious barrier to learning and even to enrollment among children from poorer households in many countries. The textbooks are either unaffordable, or not supplied, especially in rural areas. In Albania, for example, where 50 % of the population live in rural areas, villages often depend on ad hoc strategies to get textbooks from urban centers to the village. Rural schools have fewer teaching materials and less equipment than urban schools.

[3] A fall in public spending on education of 50 percent does not necessarily mean that that the quality of education has halved, but some effects can surely be expected.

[4] The exceptions by 1996 among those countries for which data are available were Romania, where spending as a percentage of GDP was low pre-reform, and Poland and Slovenia, the two countries where the recovery in output was the most advanced. In some cases, trends in real spending have been offset by declining numbers of children, so that per pupil expenditure has not been affected. This has occurred in parts of Central and Eastern Europe, but elsewhere increasing cohort sizes have worsened the situation (Micklewright, 1999).

Box 1 Public Spending on Education and their Impact on the Poor	
Type of Curtailed Expenditures:	**Impact on the Poor:**
Cut in the purchase of books and didactic materials	The poor cannot afford the private purchase of books. They either have out-dated books, on no books at all. This can lead not only to poor learning outcomes, but also to non-enrollment or non-attendance, which in turn will result in lower education attainment for the poor.
Deferral of building maintenance	The poor have often no choice but to attend public schools. In some FSU countries, the education sector has rapidly decapitalized, up to the point of crisis. Leaky roofs or non-heated schools impede the access to quality education.
Low/Non-payment of Teachers' salaries	Lower teacher wages and wages paid in arrears—a major problem in the education sector—result in less teaching effort in class room, encourage teachers to spend time earning income elsewhere and lead to poverty.

Finally, in countries where public expenditures in education have shrunk, aggregate and therefore household income fell as well. The fall in individual income—which was further exacerbated by a reduction in the state support for children resulted in parents having fewer resources available to deploy on the behalf of their children's education. For the poor, access to education became either more difficult, or simply unaffordable.

This paper examines how children in poverty, as a first client of education, were affected during the transition. The paper offers an analysis by *groups of countries*--computed as an un-weighted average of countries, rather than by individual countries. It identifies issues in the education system by using data on the *level* (quantity)—and to a lesser extent on the quality of education. Finally, it highlights the need to study further the determinants of school enrollments among the poor. Further work include the importance of informal education payments and their effect on the demand for schooling in ECA countries.

The paper first looks at the long-term benefits of education. It then examines the supply of education and the short-term incentives to invest in education for the poor. Finally, it draws the policy implications.

I. The Long -term Benefits of Education

Although public spending in education has fallen in most transition countries, they still account for a sizeable fraction of the public purse. Table 1 shows that, on average, transition countries governments spend 4.4 percent of their GDP on education. For comparison, OECD countries governments as a whole (with ten times transition countries' GDP per capita) spend, on average, 4.9 percent of their GDP on education (OECD, 1998).

Table 1 Public Expenditures on Education in ECA and OECD, 1996
(unweighted average)

	(% of GDP)	*GDP per capita*
Central and East Europe, Baltics	***4.8***	***2,659***
Central Europe	5.3	4,253
South-Eastern Europe	3.5	1,128
The Former Yugoslavia [1]	3.5	...
Baltic States	5.9	2,596
Former FSU	***4.1***	***1,003***
Western CIS	4.0	1,651
Caucasus States [2]	2.2	433
Central Asian Republics	6.1	924
Average in ECA Region	**4.4**	**1,831**
OECD Total (1995)	4.9	17,542
Germany	4.5	20,509
Greece	3.7	12,173
United Kingdom	4.8	17,862
Spain	4.8	14,317

Notes: 1) excludes Bosnia and Herzegovina-Herzegovina, Croatia and Federal Republic Yugoslavia; (2) Armenia only
Source: World Bank (1999g); OECD (1998)

In transition countries, the role of personal wealth in assuring access to education has expanded. As the paper will show, out-of-pocket expenses for education have risen and there has been a shift from a public to a private financing of education. In Georgia, for example, private spending contribute about 27 % of total expenditures on education (which in 1998 were estimated at 2.3 % of GDP) (World Bank, 1999b). In Ukraine, total non-budget financing on education—whether private, shadow, or unofficial—totals 500 million hrivnyas, or about one quarter of budget allocations to education (Ukraine CEM, 1999). Given the magnitude of these investments in education, it is important to understand how they contribute to development and growth.

Human Capital, Growth and Poverty

Following the work of Lucas (1988), most of the economic literature concentrated on the connection between human capital and economic growth. It shows that education, as a prime component of human capital, is conducive to long term economic growth and development (Schultz, 1993). The link between human capital and growth is two way: 1) education supports growth by enhancing skills, productivity, and adaptability; and 2) better-educated people are capable of being more productive. The links are mutually reinforcing, creating a virtuous circle, whereby increased growth generates resources for investment in education, which in turns foster economic growth.

Empirically, "the relationship between education and economic growth...remains (however) unclear. Output growth depends on the increase in the quantity and quality of the capital stock; on the increase in quantity and quality of the labour force; and on a variety of non-economic factors. Education affects only one of these, the quality of the labour force. The problem is to separate the quantitative effects of this variable given the influence of all the others" (Barr, 1998a).[5]

In the early 1990s, Barro (1991), Mankiw, Romer and Weil (1992) and Barro and Sala-i-Martin (1994) showed that, although levels of schooling did not appear to contribute *directly* to economic growth, they generated large positive externalities. The presence of such externalities provided a justification for the public subsidization of education.

Human capital accumulation is, however, not a sufficient condition for growth.[6] Some developing countries expanded education only to see high subsequent unemployment rates and falling returns. In other countries, the highly educated have often found work only in the public sector, perhaps undermining the overall impact on growth (Temple, 1999).

Moreover, economic growth does not necessarily help the poor. A survey of Georgian households showed that those who benefited from economic growth during the transition were mostly in the upper half of the income distribution range (World Bank, 1999b).[7] In countries with high and persistent inequality, the trickle-down effect of even fairly high rates of growth has been generally slow (Bardhan, 1995). Even where growth has led to substantial reductions in poverty, the role of targeted public expenditures to the poor has been important (Dreze and Sen, 1989).

The East Asian experience can be used to illustrate the links between investment in human capital, poverty and growth. In the 1980s, East Asia achieved fast

---

[5] A second problem is the assumption that education is *causally* linked to *individual* productivity. The screening hypothesis—education does not directly affects productivity but simply enables employers to identify workers with different levels of ability, disputes this view. The problem is that some of the variables that are needed to test the screening hypothesis are unmeasurable, hence no definitive conclusion.

[6] The link is not automatic, because education addresses only the supply side of a broader equation: it increases the availability of skilled labor. In the absence of policies that increase the demand for labor, increased opportunities for education can translate into a highly skilled, but unemployed population.

[7] A Survey of Georgian households showed that the per capita consumption in non-poor households has increased by 25 %, whereas consumption in poor households did not increase at all (World Bank, 1999b).

economic growth, substantially reduced poverty, and invested in human capital (World Bank, 1993). Rapid progress was made in education in advance of high growth. This meant that people were better equipped to respond to market opportunities as they emerged. It also meant that growth was built on the solid foundation of increasing skills levels, enabling productivity gains to be converted into rising real wages (Watkins, 1998). In this process, governments played an important role: they financed—in 1996, East Asia spent 3.5% of its GDP on education; and guaranteed access to basic education for all, including the poor.

Microeconomic Rationale for Investing in Education

What is the profitability of investing in human capital? Microeconomic empirical studies show that more educated men and women earn more and produce more output than the less educated in a wide range of activities (Schultz, 1988). Education enhances the productivity and earnings of labor.[8] It is thus not surprising that governments have been willing to expand a substantial fraction of their national income on public education; neither is it hard to understand why parents have set aside an increasing amount of their private disposable income to school their children.

The microeconomic perspective helps to formalize the motivation of private individuals to invest in education. Education, like other components of human capital, is viewed as an investment. The decision to invest in education depends essentially on the expectation that the *market* rate of return warrants the investment.[9] Typically, the higher the returns to education relative to returns to other investments, the larger the incentives to acquire human capital.[10]

Recent research also looked at the effects of schooling on *non-market* outcomes. Among those outcomes, education is likely to have an impact on the health of children and adults (Strauss & Thomas, 1998) and on fertility (Birdsall, 1988).

The interrelationship between education and poverty is complex. Two separate questions have to be examined: first, does education provide a means out of poverty? And second, does poverty preclude the poor from accessing education? The first question addresses the causes of poverty. The second question concerns the impediments to access education. We now examine both questions in turn.

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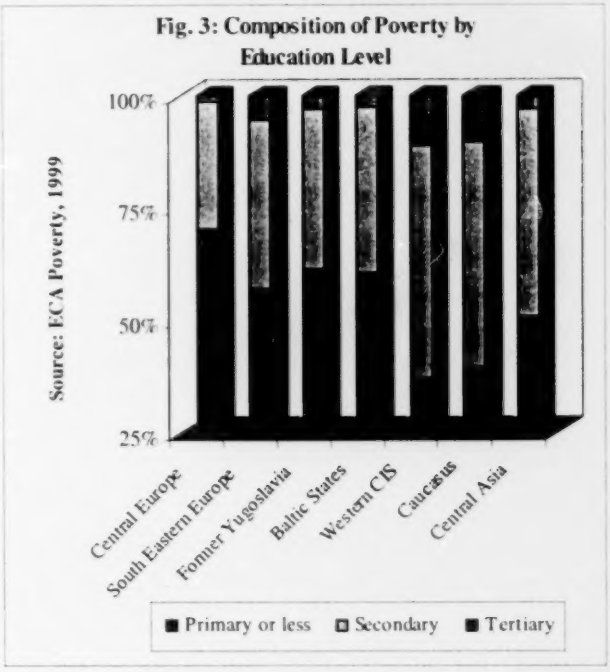
[8] It can also be shown that there is an important human capital aspect of earnings mobility. More schooling leads to more earnings *and* better chances to improve one's earnings.

[9] The principal theoretical implication of human-capital theory is that the demand for upper secondary and higher education is responsive both to variations in the direct and indirect private costs of schooling and to variations in the earnings differentials associated with additional years of schooling.

[10] Investment in education also depends on the length of the individual's time horizon over which investments can be recouped through higher earnings (Becker, 1964).

Does Education Provide a Good Safety Net Against the Risk of Poverty?

Figure 3 shows the extent to which education is a good predictor of poverty.[11] On the whole, it shows that "under-educated" are disproportionately represented in the ranks of the poor. There is, however, a marked difference between Central, South-East European and Baltic countries on the one hand, and the Former Soviet Union (FSU) countries on the other:



- In the first group of countries, educational attainments and poverty status are strongly related. In Central Europe, for example, 66 % of the poor have only primary education or less; only 1.5 % of the poor reached tertiary education.

- In contrast, in the FSU countries, the link between poverty and education is neither monotonic, nor clear. If anything, the level of education is somewhat loosely associated with poverty status. In Western CIS, for example, 37 % of the poor have primary education, while 52 % has secondary and 11% has tertiary education. In Georgia, the education of the household head tends to be only weakly associated with chronic poverty: at all levels of primary and secondary education, the risks of poverty are approximately the same (World Bank, 1999b). In Moldova, among the unemployed, the poverty rate of those with primary/illiterate education (32%) is only slightly higher than those with university education (27%) (World Bank, 1999d).

In FSU countries, the level of educational attainment seems to provide little insurance against the risk of poverty. As the paper will show later, this observation does not imply that education is irrelevant: it is rather indicative that these economies are mal-functioning.

Does Poverty Preclude from Accessing Quality Education?

During the transition, the poor have been adversely affected by both the fall in family income and the reduction in state support for children. For example, grants for students living away from home have fallen sharply and children clothing and shoes are

[11] On the link between education and labor market/poverty status, see annex 2.

no longer subsidized in the same way as before. In addition, a large number of welfare benefits (paid leaves for child and pre-natal care, child allowances, child support for single parents, safety nets for families with special needs, secure unemployment and low-income supplementary income programs, and universal free health care) have been scaled down.

Preliminary evidence shows that inequality of opportunities have emerged on the following grounds:

- **Income** Although most countries guarantee free access to basic education, it does not mean that *de facto* education is free. Compared to the past, education has become an expensive commodity. For example, parents may be charged for textbooks and other materials, transport costs, the purchase of clothes for school and possibly for extra tuition. These costs are generally beyond the means of even average families, precluding an equitable access to a range of income.

- **Ethnicity** There is some evidence of reduced educational access for minorities—in particular Roma children and Russian-speaking children in (some) former Soviet Republics. The recently adopted *The Hague Recommendations Regarding the Education Rights of National Minorities* emphasizes minority language rights, the rights of national minorities to establish private schools, and to teach minority histories, cultures and traditions. In practice, underprivileged minorities seldom have the power or the resources to assert their educational rights. Yet, these groups are often the least educated, with the highest rates of illiteracy.[12]

- **Location** In the Russian Federation, a few regions have been able to capitalize on their resource endowments, location and other factors to increase their income. These regions have been able to spend more on education and other social areas. In contrast, the poorest regions, with low per capita incomes and little fiscal capacity, have been struggling to maintain the basic requirements for high learning achievements in schools (World Bank, 1999f). In Hungary, the decentralization resulted in an highly unequal distribution of resources across municipalities. Such effects had serious implications for the quality of education across regions, especially between poorer rural and wealthier urban communities (Laporte & Ringold, 1997). In FSU countries, the rural-urban gap in textbook availability for children widened in the 1990s. In Georgia, for example, in 1996, 43% of primary and secondary school directors in urban areas reported that textbooks were available for all children, compared to 27 % of directors in rural areas (World Bank, 1999b).

[12] The Council of Europe (1995) estimates that up to half of the Roma population of Europe is of school age. Moreover, half of their children never go to school, and of those who do, very few reach secondary education. Adult illiteracy is over 50%, and in some communities, as high as 80%. For further details, see Ringold (forthcoming).

Why is it important to preserve access to education for the poor?

- **Intergenerational Transmission of Poverty** Various studies in the US have shown that, on average, children from poor families fare worse than others: they are more likely to drop out of school; when poor children grow up, they get less education, are less likely to work, earn lower wages when they do, and are more likely to become single parents than better off children (Mayer, 1997).

- **Educational Attainments** Children raised in affluent families succeed more often than those raised in poor families because rich parents both pass on superior endowments and can invest more in their children (Becker, 1991).

  The fact that poor children fare worse than rich children does, however, not necessarily mean that low parental income *per se* hurts children. Individual characteristics of low-income households, such as parental education, family structure, neighborhood, can explain schooling outcomes as well. In the US, intergenerational income mobility has been shown to be a function of the mean earnings of the ethnic group in the parents' generation—the so-called ethnic capital. Individuals raised in advantageous ethnic environments are exposed to social and economic factors that increase their productivity, and the larger or more frequent the amount of this exposure, the higher the resulting "quality" of worker (Borjas, 1995).

- **Preserve Societal Efficiency** The costs of excluding the poor from education are high for the society as a whole. *De facto*, excluding the poor from education represents a loss of a productive resource for the economy—transition countries cannot afford to waste talent.

- **Maintain Social Equity** The equity objective is that access for a gifted young student to a education should not be diminished by the fact that she/he comes from a poor family (Barr, 1999) When poor children find themselves excluded from the opportunities that will allow them to compete on an equal basis with those from most prosperous backgrounds, they face a higher risk of depression, criminality, youth alcoholism and unemployment. Poor endowment and access to lower quality schools and tutoring are all impediments to equal competition with better-off children.

II. Impediments to Access Education for the Poor

In the route towards higher standards of living and greater efficiency, the transition towards a market economy have led to mixed results. The welfare effects of transition depend on two factors: (1) getting the prices "right" and (2) getting the institutions, i.e. the education system and labor market, "right". This section explores the extent to which the price of education and these institutions were set "right" in the transition.

Supply of Education to the Poor

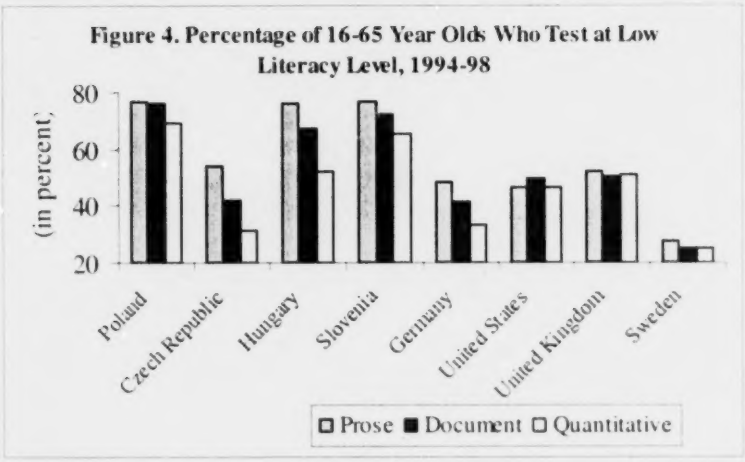
In addition to failing to provide an equitable access, the education system in ECA countries is undermined by fundamental inefficiencies:

- External Inefficiencies refer to the types of educational activities which equip inadequately individuals for the societies in which they live.
- Internal Inefficiencies refer to the inefficiencies with which the education system is run.

External Inefficiencies

The current education system produces a labor force that is not adequately prepared for a market economy. In theory, education performs three functions: 1) the transmission of knowledge; 2) the transmission of skills, and 3) the acquisition of "behavioral traits", i.e. values and attitudes shaping behavior. In sum, what "formal education does...is not so much to train workers, as to make them trainable" (Blaug, 1993). Evidence from the OECD International Adult Literacy Survey (IALS) suggests that formal education in ECA countries meets the first objective, but not the latter: the region's education systems are a poor fit with modern economy.

The education system in ECA countries has put emphasis **on memorized factual and procedural knowledge**, but not on trainability The IALS defines literacy as the information-processing skills that adults need to perform school tasks encountered at work, at home, or in community—it measures the individual capacities to apply knowledge to solve problems often not previously encountered. Results of the Survey show that adults in Poland, Slovenia, the Czech Republic, Hungary and East Germany scored very poorly (Figure 4).



Source: OECD, 2000.

Moreover, education in ECA countries is **excessively specialized**. In planned economies, the education system prepared specialists who knew what job and what professional responsibilities they would have in the future. Thus, there were no problems to do with education supply and labor market demand. The narrow specialization was acceptable, since curricula at the higher education institutions and graduated placement were controlled by state bodies. In a market-oriented environment, professional development is however less predictable. The current vocational/technical secondary education is not well equipped to respond to market signals and to reflect the rapidly changing conditions in transition Europe.

Finally, the education system **lacks of an objective and fair system of student assessment** to ensure comparability of results across ethnically and geographically disparate regions. In the absence of reliable assessment for school-leavers, higher education institutions are obliged to organize their own entrance examinations, which consume scarce financial resources and raise questions about objectivity and fairness.

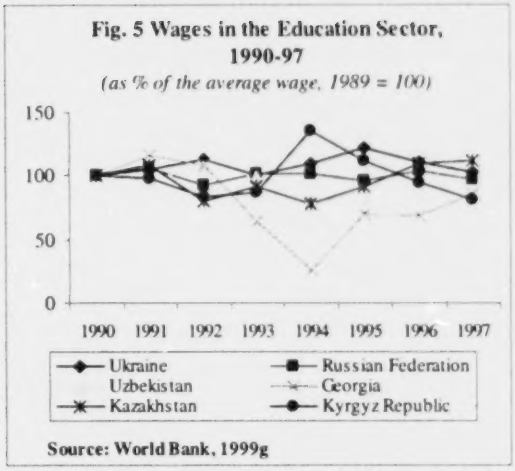
Internal Inefficiencies

Most ECA countries have tended to react to the contraction in the GDP by reducing public spending on education. While the volume of financing spent on education fell, the scale of educational services expanded. For example, some countries have increased the number of teachers, but have fewer students to teach, or do not pay their teachers. This behavior suggests that the education system is undermined by strong inefficiencies.[13]

Specifically, since 1989, there have been *increases* in the number of teachers in a system which was generally believed, like the rest of the economy, to have been overstaffed at the outset. In Bulgaria, the total number of teachers increased by 3.5%, despite attempts to scale back civil service employment (World Bank, 1999a). In Central Asia, the increases range up to 25 percent (Klugman, 1999). In the Russian Federation,

[13] Pritchett and Filmer (1997) studied the relative overspending on inputs that are of direct concern to teachers. They showed that this behavior was inconsistent with a model where resources were allocated to maximize educational output. Instead, it was consistent with a model of allocation of education spending in which teacher welfare influenced spending, over and above its impact on school quality.

every region increased its number of teachers in public employment—an overall increase of 25 % between 1989 and 1996 (World Bank, 1999f): the national number of teachers has been growing three times as fast as the number of students: the teacher-student ratio has declined from 15.8 in 1989 to 11.9 in 1997.[14]



At the same time, teachers' salaries have dramatically fallen—or are often paid in arrears, while other job benefits have been disappearing. In some FSU countries, the salaries are so low that they are an impediment to recruiting and retaining good teaching staff. The incentives for existing teachers to learn new pedagogical skills is minimal.

Ukraine, for example, has attempted to maintain the traditional delivery of educational services in spite the tight budgetary environment. Table 2 illustrates some of the emerging inefficiencies" in the education sector. The table shows the discrepancy between the growth in the number of teachers (and schools) on the one hand, and the number of students on the other hand. For example, in tertiary education, Ukraine expanded the number of teachers by 9 percent and the number of schools by 5.5 percent between 1990 and 1997, while the average number of students remained almost constant.

Table 2 Education Supply and Enrollment in Ukraine, 1985-97
(in percentage change)

	1990/1985 *(in %)*	1997/1990 *(in %)*	1997 *(in thous.)*
Pre-School			
Urban Areas			
Number of Schools	1.7	-26.9	8.7
Number of Children	-8.4	-49.3	952
Rural Areas			
Number of Schools	12.5	-23.0	9.7
Number of Children	-0.2	-60.3	219
Basic Education			
Avg Students per class	-12.1	-3.5	22.4
Number of Teachers	13.5	6.3	571
Tertiary Education			
Number of Schools	1.6	5.5	940
Number of Teachers	5.4	9.4	119
Number of Students	-1.4	-0.1	1636

Source: Ukraine, Committee on National Statistics

[14] The student-teacher ratios are likely to fall further in the years ahead as the smaller cohorts from lower birth rates pass through the education system.

Private Costs of Education for the Poor

For parents, sending a child to school has become relatively costly. In most ECA countries, private supplementary payments at the school level have now become common. Payments are mostly used for teachers' salaries, and school operation and maintenance. Unfortunately, there is insufficient known about the magnitude of these payments and their equity effects. The concern may by that such payments have a negative effect on the poor's access to education, as they are less able to meet these payments and are likely to have more children.

The data on families' costs of education are somewhat elusive because costs are both officially and informally levied.[15]

- **Official Costs to Schooling** Though most parents want all services to be provided by public schools to be free of charge, parents end up paying sizable fees for pre-school education (and higher education) (Box 4). Parents with children attending basic education also pay for extracurricular tutorials, teachers who have not been paid, and fuel to heat schools. As textbooks often turn out to be scarce, parents often have to buy them on the private market; they may also have to pay for transport to school that used to be free. In Azerbaijan, parents report not sending their children to school because they cannot adequately clothe them. In Tajikistan, the majority of students coming from poor families report no clothing as the main reason for non-attendance (World Bank, 2000a).

- **Informal Costs to Schooling** In the Russian Federation, for example, parents can only gain access for their children to elite secondary schools by donating expensive items of equipment. They pay university teachers for teaching college preparatory courses tailored to the unique entrance requirements of their universities (World Bank, 1999e).

- **Opportunity Costs to Schooling** For the poorest families, sending a child to school implies a serious income loss. In Central Asia and the Caucasus, young children are increasingly required to work to supplement family income, instead of going to school (World Bank, 1999c). In Moldova, for example, the increasing use of child labor competes with their education. Parents take children out of school to help with farm work (World Bank, 1999d).Compared to the past, education has become an expensive commodity. For parents, sending a child to school implies both opportunity and direct costs.

[15] More investigation is, however, needed on the extent to which the demand for education in ECA countries is price elastic.

Table 3 Annual Education Expenditures by Poverty Group the Kyrgyz Republic, 1997

(in som and percentage)

	Extremely Poor	Poor	Non Poor
Tuition	21	53	375
Books, Uniforms, Fees, Tutors	193	228	356
School Repairs, Classroom Supplies,			
Teachers, Outings	36	43	64
Meals, Transport, Other	43	82	350
Total Annual Education Expenditures	*293*	*406*	*1145*
(in % of the per capita consumption)	***16.9***	***14.1***	***13.1***

Source: World Bank, 1999h

Given limited quantitative evidence, we can only speculate on the way rising expenditures in education might have affected the poor:

- Hypothesis 1 School fees levied involve a flat payment for the poor. This is regressive for at least two reasons: first, the disposable income of the poor is smaller than that of the rich, so that the flat-rate charges will absorb a larger share of their income. Second, poorer families tend to have more children than richer families, with the result that they face higher overall costs.[16]

- Hypothesis 2 School fees are progressive in the sense that they favor children from lower-income households among those children enrolled in school, particularly because of school fees exemptions. But school fees are only a share of what households pay directly to schools and are often a much smaller proportion of households' total school-related expenditures. Total expenditures paid directly to schools can increase with household income much less proportionately than do school fees alone, so that the overall structure of such payments is regressive.

In the Kyrgyz Republic, for example, the level of private expenditures on education (including fees) is two times and a half lower for the poor than the non-poor. The poor spend, however, 29% of their per capita consumption on education, compared to 24 % for the non-poor (table 3). In FYR Macedonia, the poor spend two times more on education (as a percentage of per capita consumption) than the non-poor, across all levels of education (table 4).

[16] On the link between family size and income during the transition in The Russian Federation, see Vandycke (1999b).

Table 4: Private Expenditures on Education for the Poor and Non-Poor, by Level of Education, FYR Macedonia, 1996

	Primary Education		Secondary Education		Tertiary Education	
(in denars)	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-Poor
Admission Fee	0	0	0	96	0	4916
Coaching	0	1435	0	1082	0	672
Transport	22	248	1870	3176	3446	4347
Books/Supplies	1871	2923	1760	3186	2676	3714
Other Expenditures	60	668	53	428	249	133
Total Expenditures on Education	1953	5274	3683	7968	6371	13782
(in % of per capita consumption)	**6.62**	**4.22**	**12.49**	**6.38**	**21.60**	**11.04**

Source: Demery & Rashid (1997); and author's computation

All these costs can be expected to serve differentiating access to learning achievement by household income. In particular, they can generate a fall in the demand for schooling among the poor if education is price elastic: in the household budget allocation, education—as a commodity, would interfere with the consumption of other goods and its demand would fall as its price goes up.

Finally, there is some evidence in Central Asia and the Caucasus that the drop in enrollment rates concerns girls. The *Consultations with the Poor* report that "boys are being chosen, instead of girls, to attend school" (World Bank, 1999c). This fact suggests that, if the cost of schooling affects the demand for education, it would be through gender discrimination.

Perceived Benefits of Education for the Poor

Under communism, educational background had little bearing on employment prospects or earnings potential, with access to privileged positions more likely determined by party affiliation and connections than merit. The labor market provided few incentives for individuals to prolong their education beyond the secondary level. Full employment was virtually guaranteed from the time a new graduate entered the labor market, through to retirement. Wages were highly compressed and set by the central government.

The removal of constraints imposed by a centralized wage system allows the labor market to price human-capital assets more accurately. In an increasingly competitive market, the following relationships would be expected:

- Overall wage dispersion should grow--wage differentials provide an estimate of the extent to which wages have been liberalized during transition.
- Returns to education and experience should increase.

Wage Dispersion

Using the work of Atkinson and Micklewright (1992) as a rough benchmark, Newell and Reilly (1999) found that wage inequality in most countries has clearly widened since the collapse of central planning. In general, transition countries have now earnings distributions wider than those in Western European OECD countries (Rutkowski, 1999). The rate of change of wage inequality has, however, varied dramatically across transition countries, with the rise being considerably more modest in some countries than in others.

Table 5 shows the contrast between the countries of Central and Eastern Europe (CEE) on the one hand and the FSU countries on the other. The CEE countries are generally characterized by levels of inequality comparable to those prevailing in many established capitalist economies. For example, Poland's wage structure is now similar to that of Canada, Australia and France (Rutkowski, 1996). In contrast, wage inequality in the FSU has risen dramatically under the transition. In the Russian Federation in 1996, the magnitude of inequality is over three times that of Poland. Data on Moldova (Lindauer, 1997), Georgia and Armenia (World Bank, 1998 and 1999b) show levels of wage inequality comparable to The Russian Federation.[17]

Table 5 Wage Inequality in Transition Europe

	1992	1997 (or 1996)
Central Europe		
Poland	2.9	3.5
Hungary	3.6	4.2
Czech Republic	2.7	3.0
Slovakia (*)	2.4	-
South-Eastern Europe		
Romania	2.4	5.2
Bulgaria	3.1	3.6
Former Yugoslavia		
Slovenia	3.0	3.3
Macedonia	2.8	3.2
Yugoslavia (*)	-	4.4
Baltic countries		
Latvia	4.4	4.4
Lithuania	5.2	4.1
FSU countries		
The Russian Federation (*)	6.6	10.2
Kazakhstan (*)	8.7	8.0
Azerbaijan (*)		11.9
Uzbekistan (*)		5.5
Ukraine (**)		4.8
Western Europe		**2.0 to 3.5**

Sources: Rutkowski (1999); Newell & Reilly (1999) for (*); for Ukraine, World Bank (2000), based on Consumption.
Note: inequality measured as top decile to the bottom decile.

[17] The factor that compounds earning differentials between the poor and non-poor is wage arrears. Wage employees, when they are poor, tend to have a greater chance to be subject to wage arrears than do the non-poor. Lehman, Wadsworth and Acquisti (1999) explained the large observed inequality in wages in The Russian Federation by the presence of wage arrears. Klugman (1998) found that half of the change in the Gini coefficient in Uzbekistan for wages between 1989 and 1995 could be attributed to wage arrears.

Private Rates of Returns to Education

In the course of transition, the earnings differentials (wage premium) by educational level have risen, with notable differences among transition countries. In Poland, the wage premium for university educated (over primary educated workers) rose from 35 % to 75 % (Rutkowski, 1999); in Estonia, from 11 % to 69 % between 1989 and 1995 (Noorkoiv & al., 1997), and in Hungary, from 34.4% to 45.8% between 1986 and 1994 (Kollo, 1996). In FSU countries, the rise in the wage premium was much more modest: in the Russian Federation, for example, the wage premium of a university educated (over a specialized secondary educated worker) rose from 8.3% to 21.3% between 1991 and 1994 (Brainerd, 1998).

Does the level of educational attainments command a wage premium? Table 6 summarizes recent estimates of returns to years of education and university qualifications in selected countries. It shows that returns to education are below those in high-income market economies. These returns illustrate the extent to which human capital is still undervalued under emerging market economies.

- **Returns to years of education** Under central planning, the wage premium was intentionally low. Empirical studies provided estimates of between 4 and 5 % for each additional year of education (Newell & Reilly, 1999). Recent estimates suggest that, in Poland, Bulgaria, FYR Macedonia, and the Russian Federation, an additional year of schooling commands, on average, a 7 percent premium. For comparison, estimates for market economies range in value from between 6.6 % for the high-income countries to 11.2 % for the low income (Psacharopoulos, 1994).

- **Returns to university qualifications** The wage differentials by education level, up to university, have been modest. In Moldova, for example, the returns to education between primary and lower secondary education are low (World Bank, 1999d). In Georgia, the earnings differential between those with basic and specialized education is almost non existent (World Bank, 1999b). Table 6 focuses on marginal returns to university qualifications which can easily be compared across countries and have risen the most sharply, with respect to other levels of education, during the transition. It shows that there is no uniform trend in the region. In Central and East Europe, the returns hovers around 8 %, except in the Czech and Slovak Republics. In the FSU region, returns rose to 18 % and 5 % in Kazakhstan and the Russian Federation, respectively.

Table 6 Rate of Returns to Years of Education and University Qualifications in Selected Countries

	Year of Reference	Years of Education	University Qualifications	Adjusted R^2	Sources
Central Europe					
Poland	1992	-	8.6	0.359	*Newell & Reilly (1999)*
	1995	7.3	9.1	0.330	*Rutkowski (1999)*
	1996	-	7.7	0.453	*Newell & Reilly (1999)*
Hungary	1992	-	4.5	0.448	*Newell & Reilly (1999)*
	1996	-	6.9	0.404	*Newell & Reilly (1999)*
Czech Republic	1984	2.4	1.5	0.252	*Newell et al. (1999); Munich et al. (1999)*
	1992	5.8	3.8	0.352	*Newell et al. (1999); Munich et al. (1999)*
Slovakia	1984	2.8	2.3	0.248	*Newell & Reilly (1999)*
	1992	4.9	4.2	0.335	*Newell & Reilly (1999)*
South-Eastern Europe					
Bulgaria	1997	6.5	8.1	0.262	*Rutkowski (1999)*
Former Yugoslavia					
Slovenia	1987	-	7.0	-	*Orazem et Vodopivec (1994)*
	1991	-	8.0	-	*Orazem et Vodopivec (1994)*
FYR Macedonia	1996	7.0	9.4	0.253	*Rutkowski (1999)*
Baltic States					
Estonia	1989	-	3.7*	0.190	*Noorkoiv et al. (1997)*
	1995	-	13.2*	0.300	*Noorkoiv et al. (1997)*
FSU countries					
The Russian Federation	1992	3.1	4.2	0.248	*Newell & Reilly (1999)*
	1994	6.7	4.3*	0.165	*Brainerd (1999)*
	1996	-	6.3	0.167	*Newell & Reilly (1999)*
Kazakhstan	1994	-	-	0.263	*Newell & Reilly (1999)*
	1996	-	17.9	0.218	*Newell & Reilly (1999)*
Uzbekistan	1995	-	8.1	0.155	*Newell & Reilly (1999)*
Azerbaijan	1995	-	5.5	0.305	*Newell & Reilly (1999)*
Memorandum. Items:					
United States	1995	9.3	-	-	*OECD (1998); Krueger & Pischke (1995)*
Germany	1987	4.9	-	-	*Psacharopoulos (1994)*
Great Britain	1984	6.8	-	-	*Psacharopoulos (1994)*
Chile	1989	12.0	-	-	*Psacharopoulos (1994)*

Note: Results of OLS regressions for augmented monthly earnings function, with control variables. (*) denotes author's calculations based on OLS estimates.

Returns to Experience

Recent estimates show that transition shifted the earnings peak towards younger ages. In Bulgaria, for example, wages of younger workers, with short tenure, are much higher than those of older workers (World Bank, 1999a). In Estonia, Nookoiv & al. (1997) found that the returns to experience fell: in 1989, the peak of life cycle earnings occurred at 21.5 years of experience; by 1995, the peak fell to 10.8 years of experience.

In the Russian Federation in 1994, men who would be at the peak earning age in most other countries (i.e., the 45-55 age-group) earned little more on average than did new entrants to the labor market (Brainerd, 1998). In 1996, young male workers secured *ceteris paribus* mark-up of over 17 % compared with their older counterparts (Newell & Reilly, 1999). In sum, the returns to experience for younger workers have risen, while those for older workers have fallen.

One explanation for this pattern explanation may be that older workers with short time horizons may not find it worthwhile to invest in learning the new skills necessary to be successful in the new economy. Human capital theory predicts that the young have greater incentives to invest in human capital because of their longer time to recoup the investment. Thus, the apparent growth in returns to the younger groups might be consistent with greater incentives to invest in human capital. Another explanation may be that the human capital embodied in the most experienced workers reflects skills acquired under the "old" system which rewarded different skills than the "new" system.

Unobserved Variables

It has often been argued that wage inequality has been driven by increasing returns to education and that 'education' became the prime determinant of earnings differentials (see for example, Rutkowski, 1999). Differences in educational attainments do, however, *not* prove to be the most important observable factor accounting for earnings inequality across *all* countries.[18]

Table 7 summarizes the contribution of education and selected other factors to the earnings inequality in selected countries. In Poland, for example, differences in educational attainment is the most important observable factor accounting for wage inequality: they explain 12 % of the total variance in earnings and 35 % of the explained variance. Inter-sectoral wage differentials are the second most important factor causing wage inequality: they account for 9 % of the total variance in earnings, and one-third of the explained variance.

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[18] Moreover, and in contrast to what is observed in market economies, the largest component of earnings inequality is the *unexplained residual*. Across all ECA countries, changes in the wage structure are mostly driven by unobserved variables. Brainerd (1998) speculates on these other variables in The Russian Federation: "a potentially important omitted variable is entrepreneurial skill or willingness to take risks, a characteristic which enables some individuals to thrive in the new environment regardless of other attributes. Unobservable "skills" could also simply reflect the pure luck of being in the right place at the right time in an environment of extreme disequilibrium". Brainerd pursues "in some senses the The Russian Federationn economy is like a lottery, with large rents accruing to those well positioned to take advantage of opportunities—but also substantial losses for those who draw a losing number".

Table 7 Contribution of Selected Factors to (log) Earnings Inequality

(in % of the variance)

	Poland (1995)		Hungary (1996)		Armenia		Georgia		The Russian Federation	
	Total Variance	Explained Variance	Total Variance	Explained Variance	Total Variance	Explained Variance	Total Variance	Explained Variance	Total Variance	Explained Variance
Education	11.5	34.9	25.9	61.7	0.3	0.8	0.4	1.1	2.7	8.1
o/w tertiary	9.1	27.4	17.9	42.7	-	-	-	-	-	-
Job Experience	3.8	11.6	2.1	5.0	0.4	1.1	1.9	5.5	1.5	4.6
Gender	6.8	20.5	3.8	9.1	7.8	23.7	6.1	17.4	6.5	20.0
Ownership	-0.6	-1.9	0.0	0.0	8.4	25.4	6.1	17.3	1.0	3.0
Sector	8.7	26.3	4.8	11.3	12.4	37.7	13.4	38.2	7.5	23.0
Location	2.9	8.6	5.5	13.1	3.6	10.9	7.2	20.6	13.5	41.3
Total Explained	33.1		42.1		32.8		35.0		32.7	
Unexplained	66.9		57.9		67.2		65.0		67.3	
Total	100		100		100		100		100	

Sources: Poland and Hungary (Rutkowski, 1999); Armenia (Yemtsov, 1999); Georgia (World Bank, 1999b); The Russian Federation (Lehman & al., 1999a)

As shown in table 7, human capital characteristics—education and experience, explain a large fraction of the overall inequality in Poland, Hungary and Macedonia. The pattern is, however, quite different in Armenia, Georgia and The Russian Federation: 'education' only explains a small fraction of the earnings inequality. In The Russian Federation, for example, 'education' accounts for only 8% of the explained variance. Among observable factors, regional and sectoral factors explain most of the earnings differentials. This result is consistent with Newell and Reilly (1999), who, in a cross-section of 9 countries[19], found that the change in the estimated returns to university education only explained 13 % of the variance in wage inequality. Thus, there remains a significant part of the variability left unexplained by such returns.

To support this observation, a second set of indicators was computed[20]: 1) the "consumption premium"—it measures the gain in consumption derived from having the household head attain tertiary education (over primary); and 2) the Theil coefficient—it measures the percentage of the inequality in consumption that can be attributed to differences in the level of educational attainment. The results are reported in table 8.

Table 8 Decomposition of Consumption Inequality by Education Level of the Household Head

(in percentage, per adult equivalent)

	Consumption Premium	Theil Coefficient
Central Europe	89.3	14.8
South Eastern Europe	104.8	8.2
Former Yugoslavia	79.5	13.0
Baltic States (Latvia)	77.7	9.1
Western CIS	48.2	3.2
Caucasus	24.4	1.1
Central Asia	38.3	1.9

Notes: (for theta = 0.75, unweighted avg). Premium = % of $C_{higher}/C_{primary}$; Theil coef. = % of C inequality due to differences in educational attainments.

Source: Author's calculation

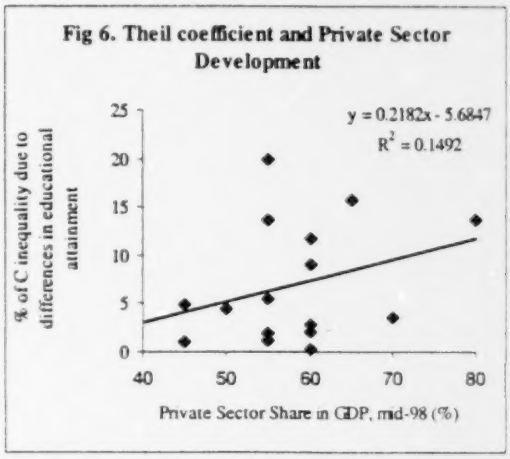
[19] The sample includes nine transition countries with a geographic range covering Central and Eastern Europe, the Russian Federation and 3 other FSU countries.

[20] Compared to table 7, the second set of indicators is based on consumption (and not earnings) data and uses the educational level of the household head (and not of the individual).

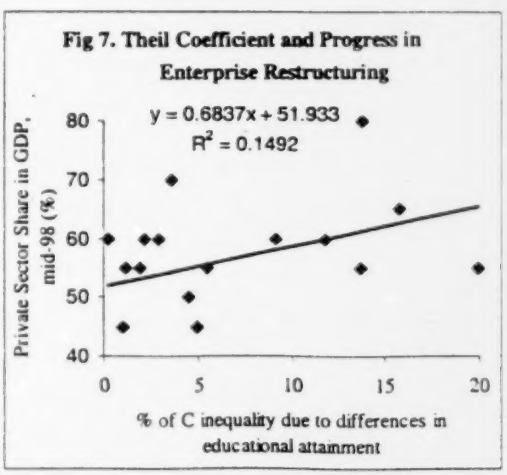
In the first group of countries (Central, South Eastern, the former Yugoslavia and Baltic States), differences in educational attainments explain a substantial fraction of the inequality in consumption. In Central Europe, for example, population groups with tertiary education secure an additional 89.3 % consumption over groups with only primary education; educational disparities explain 15 % of the inequality in consumption (compared to 5% in Nordic OECD countries). In contrast, in Western CIS countries, the consumption premium (48.2%) is half the one in Central Europe (89.3%). Differences in educational attainment only explain 3% of the overall inequality.

The difference in pattern between both groups of countries can significantly be explained by, at least, two factors:

- **The degree of private sector development** As shown in figure 6, the share of consumption inequality explained by differences in educational attainments is a positive function of the degree of private sector development (as measured by the private sector share in GDP, mid-98). The emerging private sector is expected to absorb the highly educated people, to create high-skill jobs and to respond to these skills with a wage premium. Whenever, as in FSU countries, the private sector fails to develop, even the highly educated can remain unemployed, or are employed in a low-skill, inefficient state sector.



- **The flexibility of the labor market** As shown in figure 7, the share of inequality explained by differences in educational attainment is a positive function of (the proxy for) labor market flexibility (the EBRD, 1 to 5 index of progress in enterprise restructuring). Whenever institutional barriers in the labor market are removed, re-allocations of labor can take place and human capital endowments can be properly valued. In that case, education is likely to be the sorting variable that determines who remains and who leaves/avoids the unemployment pool. If the labor market is inflexible (or non-existent), there is a rent-seeking



behavior in job occupation, that has little to do with educational attainment.[21] This is clearly the case in the FSU countries that have lagged behind Central European countries in terms of flexibility of the labor market.

[21] While it is true that, over time, these rents are likely to be arbitraged away, the process might be slowed down due to labor market imperfections.

III. Policy Analysis

The preservation of human capital is fundamental to the long term development of the region. It is crucial for future economic growth and is vital for the wider process of societal change that underpin economic reforms. Governments in transition Europe have not yet seen the downstream and intergenerational costs of a deteriorating educational system.

Is there a Rationale for a Public Sector Involvement in Education?

Some economists—see for example, Friedman, 1997, argue that market forces in determining the price and quantity of education will produce a mix of educational services that most accurately reflects what the consumers want.

The market is likely to fail providing the socially optimal quantity of education to the poor for at least four reasons:

- **incomplete information** Parents and students underestimate the value of staying in school. The poor only imperfectly know their tastes and preferences for education;

- **imperfect access to capital market** By nature, human capital is poor collateral to lenders: children can 'default" on the market debt contracted for them by working less energetically or by entering occupations with lower earnings. Moreover, for the poor, the private purchase of schooling, especially of higher education, is beyond their means. Most credit markets do not provide an effective solution to the private purchase of schooling because of strong imperfections that reduce participation from the poorest segments of the population;

- **limited choice** The poor can often only choose from a small set of schools (with high informational collection and transport costs). Thus, they often have to consume whatever education is produced by the locally available schools (with no quality response on the supply side);

- **positive externality to education** Education has substantial externalities in terms of the health of children and adults, and lower fertility. It lowers the risk of intergenerational transmission of poverty, and helps to build cohesion in society.

In sum, there is a rationale for the *public financing* of education for the poor.[22] The market does not solve either the efficiency, or the equity problems in the education sector. Education should be provided to prevent the development of significant inequities in learning opportunities for the poor and ethnic minorities. As shown above, education provides a good safety net against the risk of poverty.

[22] Is there a rationale for the *free* provision of education? If education is compulsory, then price has no allocative function, hence there is no efficiency gain from efforts at optimal pricing.

Where Can Resources to Finance Education Come From?

For many ECA countries, the delivery of educational services for which the governments have assumed fiscal responsibility has often exceeded their budgetary envelopes. Some FSU countries have relied on the closure of schools, non-payment of teachers' wages or to fee-based provision of education to meet the ends. These adjustments are however *ad hoc* and do not prevent from a thorough re-thinking of the role of the State in the delivery of education.

Reconfigure the Public Responsibility for Education

Technically, resources for education can come from public sources, notably from taxation—either in the form of explicit public spending or through tax advantages for schools or students and their families. In transition economies, funding from taxation faces two limits:

- **Low tax compliance or under-reporting of taxable income** In some countries, low tax compliance or under-reporting of taxable income have sharply reduced budgetary revenues. Spending on education has been under increasing pressure vis-à-vis other competing uses of public resources.

- **Education expenditures tend to be regressive** Public resources are used to fund educational services that may be consumed by people from better off backgrounds. In Moldova, for example, a large proportion of the budget allocation to the education sector goes to tertiary education, essentially benefiting those who can afford it (World Bank, 1999d). Expenditure incidence analysis casts light on the extent to which the initial position of the poorest segments of the population is affected by public spending in education[23].

Table 9: Incidence of Public Expenditures on Education in selected ECA countries

	Pre-school	Primary	Secondary	Tertiary
Romania (1997)				
Bottom 20 %	-	21.0	26.0	**10.0**
Top 20 %	-	10.0	12.0	**24.0**
Bulgaria (1997)				
Bottom 20 %	**23.0**	**21.0**	**16.0**	**11.0**
Top 20 %	-	-	-	-
Macedonia (1996)				
Bottom 20 %	24.9	25.4	**12.6**	**7.1**
Top 20 %	17.5	14.0	**22.3**	**46.0**
Albania (1996)				
Bottom 20 %	-	**27.0**	**7.2**	**7.5**
Top 20 %	-	**11.8**	**32.3**	**31.6**

Note: Expenditure is marked in bold when not pro-poor

Source: Tesliuc and Pop (2000); Rashid, Dorabawila and Adams (1999); World Bank (1999)

[23] On the drawbacks of benefit incidence analysis, see Van de Walle (1998).

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Table 9 shows the distribution of public spending on education, by level of education, for the poorest (bottom 20%) and the richest (top 20%) quintiles of the population. The spending is progressive if the share received by the poor is greater than 20 % (their share in the population). As shown, spending on basic education is mildly pro-poor, while spending on secondary and tertiary education benefits the least the poor. In Bulgaria, for example, the 20 % poorest quintile benefits from 21 % of the public expenditures on primary education, but only 11 % on tertiary education. In sum, the public financing of tertiary (and secondary) education may primarily benefit those who are better off.

As a result, governments should set priorities and decide for themselves what levels and types of education they most want to protect and for whom. Moreover, the public financing of education has to be supplemented on a significant scale by private funding.

Diversify the Sources of Education Finance

"Informal" User Charges

Informal user charges are payments that are not explicit and public. They can take several forms. For example, parents may have to pay teachers for extra tutoring in order to compensate for the fact that teacher salaries are low. Legitimate costs of education may be pushed onto parents or the community, such as the costs of heating school buildings.

Informal user charges can, however, undermine the free access to basic education. In most ECA countries, *informal school funds* have emerged in response to insufficient funding for basic education. An appropriate governance structure should ensure that:

- funds are used for capital repairs, and not to pay teachers' salaries. The topping up of the teacher salaries from these funds is likely to undermine governments' attempt to rationalize the labor force in the education sector (Gupta *et al.*, 2000).

- funds do not limit the access of the poor to basic education. Because most of these contributions are "hidden," the problem of poor families who cannot afford these payments is not confronted.

Informal education payments are sufficiently important in ECA countries that they should be studied systematically, just as informal health payments are now receiving attention. To the extent that the incidence of informal payments for education is unfair, limits the education opportunities of the poor, increases regional disparities or undermine attempts to rationalize the sector, corrective measures may be needed. Legislative action against these payments may not necessary be the answer. Conditions that give rise to these payments should be removed.

User Charges

User charges are direct financial supports for education, referring to payments by recipients for identifiable elements of education services. Tuition for preschool students, charges for textbooks or laboratory materials, and tuition and dormitory fees for university students are all examples.

The rationale for user charges is that individual students receive a large part of the benefit from education and that therefore they (their families) should bear part of the cost directly. User charges may also give parents a sense of ownership in their schools that they might not otherwise have.

Although user charges have the potential to improve the quality of education beyond that which would be possible with government financing alone, they entail significant risks, especially for *basic education*.

- **User charges discourage children from poor families from attending school** The experience shows that, when countries eliminated fees for primary school, enrollment rates have increased, often dramatically.
- **The schools best positioned to raise money through user charges may be in richer jurisdictions where educational opportunities are already the best** In this case user charges increase regional disparities.

The case for user charges for education is strongest for *higher education*, where individual students realize the greatest share of the benefits of education. Several ECA countries have already introduced or are considering introducing tuition and fees to shift a share of costs from the taxpayer to students and their parents.

Scholarship Programs and Loan Schemes

The financing of higher education through user charges could be complemented by means tested scholarships and student loan schemes. Benefit-incidence analysis of scholarship programs in Romania shows, however, that these programs have a regressive distributive impact, in favor of children from middle to rich class. In the design phase, most of the scholarships fulfill a social function, with only few of them being awarded for "merit". Ex post, however, most of the scholarships (27 percent of the funds in 1997) went to the non-poor (World Bank, 1999e).

Creating an effective scholarship program and student loan scheme requires overcoming several formidable obstacles:

- **Imperfect Information** Implementing a student loan scheme requires solving the problems inherent in lending large sums of money on a long-term basis without collateral. Students generally do not have an established credit history that might be used to assess their character.

- **Eligibility** Applying a means test to identify students who are eligible for state subsidies is difficult. Countries that operate subsidized student loan schemes and scholarship programs rely on reports of income and wealth to the tax authorities in order to estimate ability to pay for schooling and capacity to repay loans. However, tax compliance in ECA countries tends to be low, and self-reporting tends to be inaccurate.

- **Interest Rate** Double-digit inflation in most ECA countries makes nominal interest rates on fixed rate loans very high. These rates impose large risks on borrowers if inflationary expectations are not realized. Innovative lending products that index the unpaid principal amount of the loan to a price index or that adjust interest rates frequently might be considered.

- **Loan Repayment** The enforcement of loan repayment is usually facilitated by the borrower's sense that the lender has a legitimate claim on the borrower. This sense of obligation derives from a recognition that the loan has supported the purchase of something of value and that the terms of the purchase were fair. The history of highly subsidized higher education in the region undermines this sense of obligation. Since consumer credit is underdeveloped in most ECA countries, there is little tradition of voluntary repayment of credit and little onus attached to default.

Adopting an *income contingent repayment scheme* may be an option for financing higher education. In this scheme, low-earnings students are protected in both the short and long run. Repayment of the loan takes the form of a percentage of her subsequent earnings, collected alongside income tax or social insurance contribution, until the loan and interest have been paid The Hungarian government is in the process of adopting such scheme. Poland will not be far behind (Barr, 1999). The key point of implementation is that a country has to be capable of administering a reasonably effective income tax. Further assessment is, however, needed on the extent to which the scheme is *de facto* fair, equitable and benefits the poor.

What is the Sustainable Level of Expenditures in Education?

ECA countries are trying to do too much with the resources available. International experience provides some guidelines for setting the priorities.[24]

Basic (compulsory) Education (grades 1 to 9)

Basic education should have first claim on public education resources, for at least two reasons: first, a sound basic education lays the "base" for subsequent learning, and second, a deterioration at this level of schooling strongly affects the incidence of poverty.

[24] International experience suggests that spending on education are increasing with income. OECD countries spend on average 6 % of their national income on education (with 1 to 2 % of private spending), while middle-income countries spend, on average, 4 % of their income on education. On average (and with adjustment for private contributions), it is reasonable to expect that, at least, 50 % of the education budget be spent on basic education and 10 % on higher education. Spending on pre-school education (including food and child care) is an outlier in ECA countries, compared to other regions.

Publicly supported mandatory education is an attainable goal in almost all ECA countries, except possibly in Armenia, Azerbaijan, Georgia and Tajikistan (World Bank, 1999g). In these four countries, the overall budgetary environment is so tight that it may no longer be possible to offer universal basic education. Governments should consider using available public financing for basic education first for the poor, expanding to the near-poor, and so forth.

When financing for basic education is secured, governments can expand public services in other directions.

Pre-School Education

Public resources should be devoted to pre-schools for the following reasons: first, children that have developmentally appropriate stimulation before they are six years old can be educated at lower cost and to higher levels than children that do not. Neurological evidence shows that children are primed to learn during the first years of life. Since preschools organized to develop the child cognitively can improve children's educational achievements at all levels, preschool should be thought of as part of the general education system.

Second, pre-schooling is a powerful anti-poverty device. In the absence of preschools, early childhood opportunities are defined by the socioeconomic status of each child's family. This means that children from poor families are likely to arrive at school at ages six or seven already at a learning disadvantage that can never be entirely mitigated. Affordable preschools can help "level the playing field" for children from poor families.

Preschool services do not have to be compulsory, but they should be universally accessible. Through parent-teacher associations, local communities could help schools and teachers compensate for the limited resources of regional and central governments. Communities could be involved in the organization of early childhood development programs. These programs are an important compensatory strategy for getting poor children ready for school. Governments can, in turn, play a facilitative role in mobilizing local communities to create these programs. These programs have the side benefit of freeing poor mothers who cannot afford the tuition of regular preschools, to work. Access to pre-schools for the poor could also be eased by granting them school fees exemptions.

Vocational/Technical Secondary Education

In most ECA countries, students have to choose between general and vocational/technical education early. Although the percent enrolled in vocational/technical upper secondary education varied in 1997 from a low of 15 percent (Albania) to a high of 85 percent (Czech Republic), in most ECA countries more than half of the students are enrolled in the vocational/technical stream of education.

On the whole, the problem with the vocational/technical education is threefold:

- **costly** Specialized education costs two to four times as much per student as general education;
- **ineffective** Early specialization, especially in narrowly defined vocational tracks, is inconsistent with the market needs for flexibility in learning; and
- **encourages unequal opportunities** Early and narrow specialization sorts out students based on family income and parental education.

As a result, the expensive specialized education should be replaced by a broadly based vocational/technical education and the number of specialization should be downsized. Training should be left to employees and general secondary education should be encouraged.

Higher Education

ECA countries have expanded higher education enrollments rapidly--a goal consistent with the human capital demands of the mixed market economies that are emerging in the region. However, with rapidly expanding enrollments, the higher education budget is likely to absorb an increasing share of the total education budget, thus endangering public spending on other levels of education that should have a higher priority.

How to Increase the Efficiency of Educational Inputs?

In a number of ECA countries, essential educational inputs such as textbooks, school supplies and school maintenance are being squeezed between the education budget and the wage bill. Substantial medium-term savings in input costs can however be made if up-front investments are made.

- **Rationalize the wage bill** ECA countries should *not* adjust their public spending on education by allowing teachers' wage rates to fall relative to other wages and running up wage arrears. Governments have to rationalize the labor force in the education sector. Estimates suggest that up to a third of the teaching labor force (and even more of the non-teaching force) should be reduced. The reduction in excessive staffing should be done while preserving the quality of education and adequately compensating those who have to leave the education sector. Experience in some ECA countries suggest that a step-by-step approach is both politically and socially desirable. As an up-front reduction in staffing would lead to an undesirable outcome (good teachers leaving the profession and lower quality or highly specialized teachers staying), an attestation mechanism could be designed to select good quality teachers. Once the attestation is implemented on a national scale, teachers wages would be brought up to the nationally competitive levels, and severance pay (training and opportunities for self-employment) would be granted to those who leave the education sector (Vandycke, 2000a).

- **Reduce energy costs** In some ECA countries, energy expenditures consume between 30 and 50 percent of total education expenditures—although they are often unpaid. Freeing up funding for other uses by conserving energy will take sustained cooperation among the sectors of government—and will take time. For example, energy-conserving school designs can gradually reduce energy use as new schools replace old ones. However, this process will take years. Insulating schools in the process of rehabilitating them and other measures, such as installing meters and billing only for energy used, will reduce the energy bill somewhat faster.

- **Consolidate schools and increase spending on infrastructure** Falling enrollment rates in preschools and basic education have resulted in a low utilization rate of schools. Yet, the fixed cost of operating school buildings is high (Vandycke, 2000a). Moreover, under-funding—often non-funding—of school maintenance over the years of transition has created an education infrastructure crisis in ECA, especially in the FSU countries. It is impossible to estimate the total value of the repairs required in the region, although estimates for Albania ($270 million) and Latvia ($850 million) suggest the magnitude of the problem. Data from these and a few other countries suggest that correcting the infrastructure problems resulting from deferred maintenance would absorb at least double the annual education budget. A cost-effectiveness analysis could help determine the schools to be consolidated, and those requiring rehabilitation and re-engineering investments.

How to Specifically Address the Access to Education for the Poor?

The education system in ECA countries should be reformed in order to improve:

- The efficiency in the allocation of public spending on education;
- The governance, management and accountability in the education sector;
- The equity of access across ethnic, regional and income groups;
- The quality of education and its relevance for labor market needs.

Moreover, the need for "informal payments" should be removed by introducing a transparent formal student fee policy for those education levels where user charges should be encouraged. Reforming the education sector along these lines is likely to do the most for the poor. Yet, even with a such a broad agenda, the education needs of the poor might not be entirely met. Additional measures, specifically targeted at the poor, may be needed. These include:

- At the pre-school level, school fees exemptions and encouragement of community-based early childhood development programs.

- At the basic education level, free provision of education, including:

    i. Linking social assistance to school attendance. Child allowances should only be paid to children that go to school.[25]

    ii. Free Provision of basic education materials (e.g. textbooks and essential education materials)

    iii. Uniform Policy: 'Inadequate clothing' (the biggest single item of expenditures on education) was often reported as a serious impediment to sending a child to school among the poor. Imposing a standard of clothing required to attend school should be encouraged. Wearing a uniform would lower the cost of clothing for parents and even out differences between rich and poor children.

- At the post-compulsory education level, provision of student financial support on the basis of needs as well as academic merits. In countries with low administrative capacity, scholarship programs should be encouraged. In most advanced reformers, alternative schemes, such as income-contingent student loan should be explored. The scheme should be consistent with fairness, equity and be financially sustainable.

Finally, in order to have high level of educational attainments (as measured in terms of literacy and problem-solving skills) reflected into wage and productivity premia, the recommendations are as follows:

- Institutional barriers in the labor market should be removed. This should help in the reallocation of labor across sectors and contribute to the proper valuation of human capital endowments.

- Employment opportunities should be fostered. The problem of transition Europe lies primarily in the insufficient demand for labor. Policies to reduce poverty among the working age population should primarily focus on fostering employment creation. Employment should be encouraged in knowledge-intensive industry and services sector.

[25] In Romania, child allowances which reaches 60 percent of the poor families are paid through the schools.

Annex 1

Table A Educational Attainment of the Population
(un-weighted average of countries)

	Primary or less	General Secondary	Vocat/Technical	Tertiary
Central Europe	**27.00**	**17.00**	**45.00**	**11.50**
Czech Republic	-	-	-	-
Hungary	30.00	7.00	52.00	12.00
Poland	24.00	27.00	38.00	11.00
Slovakia	-	-	-	-
South Eastern Europe	**31.50**	**39.00**	**18.00**	**11.50**
Albania	-	-	-	-
Bulgaria	23.00	50.00	11.00	15.00
Romania	40.00	28.00	25.00	8.00
Former Yugoslavia	**33.00**	**27.33**	**26.67**	**12.67**
Bosnia and Herzegovina	-	-	-	-
Croatia	34.00	27.00	24.00	15.00
FYR Macedonia	28.00	30.00	31.00	11.00
Slovenia	37.00	25.00	25.00	12.00
Federal Republic Yugoslavia	-	-	-	-
Baltic States	**23.00**	**58.00**	**4.00**	**15.00**
Estonia	-	-	-	-
Latvia	23.00	58.00	4.00	15.00
Lithuania	-	-	-	-
Western CIS	**30.00**	**33.33**	**16.00**	**20.67**
Belarus	-	-	-	-
Moldova	14.00	45.00	27.00	13.00
The Russian Federation	46.00	24.00	12.00	18.00
Ukraine	30.00	31.00	9.00	31.00
Caucasus	**20.67**	**34.67**	**25.00**	**19.33**
Armenia	13.00	43.00	26.00	19.00
Azerbaijan	27.00	24.00	31.00	17.00
Georgia	22.00	37.00	18.00	22.00
Central Asia	**15.33**	**55.00**	**19.33**	**10.00**
Kazakhstan	12.00	56.00	17.00	14.00
The Kyrgyz Republic	20.00	46.00	19.00	16.00
Tajikistan	14.00	63.00	22.00	0.00
Turkmenistan	-	-	-	-
Uzbekistan	-	-	-	-

Source: World Bank Education Strategy Paper, 2000

Annex 2

Education and Labor Market Status

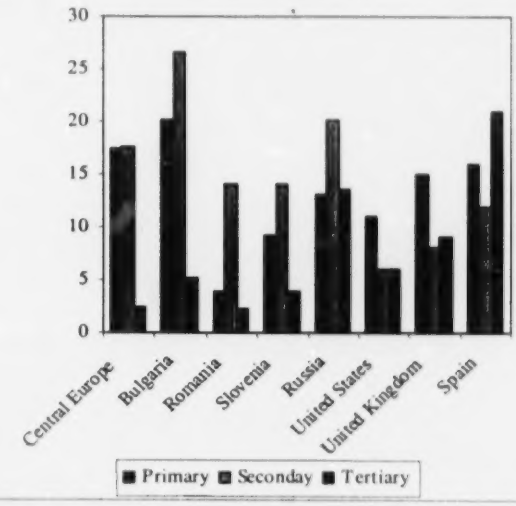
The poor derives most of their income from labor market sources, either through wages or through self-employment earnings. As a result, the risk of poverty at any moment should be closely associated with the extent to which a household participates in the labor market, and the way in which the market remunerates its labor.[26] This annex explores the extent to which labor market status relates to education.

Employment status is related to education, but imperfectly In Hungary, for example, workers with low educational attainment suffered the most from the fall in earnings (Rutkowski, 1999). In Bulgaria, however, the employment status is imperfectly related to educational attainment: of those employed, 24.5 % has primary education, while 21.5 % has an upper secondary education (World Bank, 1999a).

Unemployment status can be related to educational levels[27] As in OECD countries, unemployment rates for the university educated are lower than for all other education levels. In transition Europe, workers with general secondary or university education have lower unemployment rates than those with primary and vocational secondary education (Laporte & Ringold, 1997). In Bulgaria, for example, 41 % of the unemployed have primary education or less (World Bank, 1999a). In Macedonia, half of the unemployed have only primary education. In Moldova, those with secondary education make up two thirds of the unemployed (64 %), compared to 7 % with a university degree (World Bank, 1999d).

Unemployment affects those with education as well A closer look at the incidence of unemployment by educational level suggests that unemployment affects highly educated as well. In the Kyrgyz Republic, 89 percent of the registered unemployed have at least an upper secondary level of education (World Bank, 1999f). As shown in **figure A**, in

Fig. A Unemployment Incidence by Education Level
(% of corresponding labor force)



Source: World Bank (1999g); OECD (1998)

[26] Since the income from work is the main determinant of living conditions, the labor market acts as the main transmission mechanism between economic growth and poverty reduction. Growth reduces poverty through rising employment, increased labor productivity and higher real wages (World Bank, 1999b).

[27] The effect of unemployment on the demand of schooling is uncertain (Micklewright & al., 1990). The demand for education can either rise—rates of returns to education would fall, as both those with and without additional education, would be affected by an increase in the probability of future unemployment; or fall—as those with more education are likely to be less affected by the rises in unemployment.

Central Europe, the incidence of unemployment is the same for those having primary or secondary levels of education. In the Russian Federation, the incidence of unemployment is higher among those having secondary education (20%), than among those having primary education (13%). For comparison, in high-income countries (US, United Kingdom), the incidence of unemployment is higher for those having primary education.

Yet, the risk of poverty critically hinges on the labor force status of the family's head. **Unemployment is a primary cause for poverty**. In Bulgaria, the unemployment rate among the poor (33%) is twice as high as among the non-poor (15%) (World Bank, 1999a). In Georgia, households with an non-employed head constitute almost a third of the total extremely poor population (World Bank, 1999b).

If we take a broader definition of unemployment, and count not only those who are registered as such, but those who are "functionally" unemployed (those on forced or unpaid leaves from their enterprises) and those who are "virtually" unemployed (those with low earnings), there is an even stronger correlation between unemployment and poverty. In ECA countries, many of the poor do work, but their earning power is weaker than that of the non-poor. In Bulgaria, 34% of the poor are "working poor"(World Bank, 1999a). In FYR Macedonia, over 90 % of all cases of poverty occur in households where there is either no earner or a single earner per three or more household members (Rutkowski, 1998). In Moldova, being employed per se does not guarantee to escape from poverty. 45 % of the poor are in the labor force, but, of them, two out of three are employed (World Bank, 1999d).

Because education imperfectly relates to the unemployment status, while unemployment is strongly related to poverty, there is only **a weak negative correlation between education and poverty**. Figure B shows the poverty incidence and education status in selected transition countries. On the whole, it shows that "under-educated" are disproportionately represented in the ranks of the poor. There are, however, marked differences between Central, South-East European and Baltic countries on the one hand, and the FSU countries on the other:

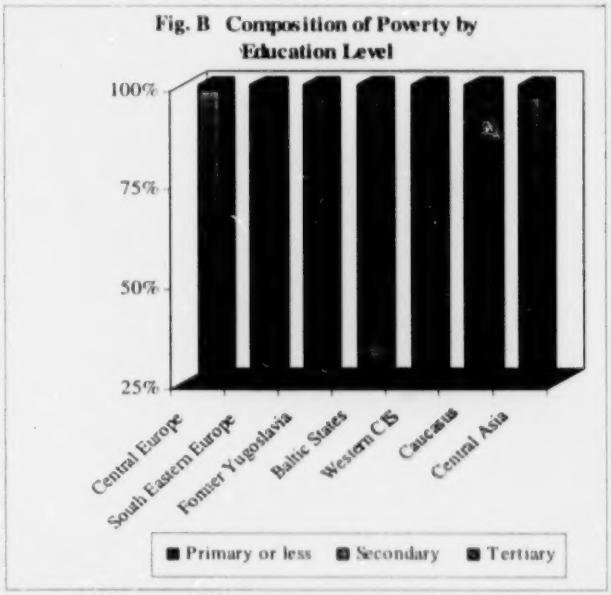


Fig. B Composition of Poverty by Education Level

Source: ECA Poverty, 1999

- In the first group of countries, educational attainments and poverty status are strongly related. For example, in Central Europe, 66 % of the poor have only primary education or less; only 1.5 % of the poor reached tertiary education.

- In contrast, in the FSU countries, the link between poverty and education is neither monotonic, nor clear. If anything, the level of education is somewhat loosely associated with the poverty status. In Western CIS, for example, 37 % of the poor have primary education, while 52 % has secondary and 11% has tertiary education. In Georgia, the education of the household head tends to be only weakly associated with chronic poverty: at all levels of completed education, the risks of poverty are approximately the same (except for tertiary education) (World Bank, 1999b). In Moldova, among the unemployed, the poverty rate of those with primary/illiterate education (32%) is only slightly higher than those with university education (27%) (World Bank, 1999d). In these countries, the level of educational attainment seems to provide little insurance against the risk of poverty.

Annex 3

Table B Composition of Poverty by Education Level

(Theta = 0.75, 50% of median income)

	None	Age < 15	Primary	Gen. Secon	Technical	Tertiary	Unknown
Central Europe							
Czech Republic	-	44.2	24.4	2.1	27.5	1.8	-
Hungary	-	27.3	44.7	3.1	23.6	1.4	-
Poland	-	38.2	19.6	6.3	17.7	0.7	17.6
Slovakia	-	-	-	-	-	-	-
South Eastern Europe							
Albania	-	-	-	-	-	-	-
Bulgaria	6.2	19.7	32.9	23.2	6.6	4.9	6.6
Romania	1.9	19.6	29.9	29.2	14.1	5.3	-
The Former Yugoslavia	-	-	-	-	-	-	-
Bosnia and Herzegovina							
Croatia	-	-	47.4	25.7	21.7	5.2	-
FYR Macedonia	-	29.4	29.0	32.1	6.6	2.8	-
Slovenia	1.0	19.1	57.9	19.7	-	1.1	1.2
Federal Republic Yugoslavia							
Baltic States							
Estonia	-	33.0	31.3	33.3	0.5	1.9	-
Latvia	-	23.8	33.0	36.4	4.0	2.9	-
Lithuania	-	-	-	-	-	-	-
Western CIS							
Belarus	-	-	-	-	-	-	-
Moldova	-	25.5	13.4	38.6	17.8	4.6	-
The Russian Federation	-	-	34.9	39.1	21.0	5.0	-
Ukraine	4.1	20.7	12.7	28.7	10.4	23.2	0.3
Caucasus							
Armenia	-	31.4	7.0	35.6	16.0	10.0	-
Azerbaijan	-	33.0	8.1	22.4	16.0	7.3	13.3
Georgia	-	23.4	6.5	35.5	13.0	11.3	10.3
Central Asia							
Kazakhstan	-	37.1	6.7	20.4	25.4	4.8	5.7
The Kyrgyz Republic	-	42.8	5.6	42.5	4.4	1.6	2.1
Tajikistan	2.2	48.0	5.3	34.2	6.7	1.9	1.7
Turkmenistan	-	-	-	-	-	-	-
Uzbekistán	-	-	-	-	-	-	-

Source: ECA Poverty 2000 Report, 2000

Annex 4

Table C Poverty Risks by Education Level

(Theta = 0.75, 50% of median income)

	None	Age < 15	Primary	Gen. Secon	Technical	Tertiary	Unknown	% in Total
Central Europe								
Czech Republic	-	6.5	3.3	1.3	2.9	0.8	-	**2.8**
Hungary	-	27.2	23.5	6.9	13.3	3.1	-	**18.0**
Poland	-	17.2	10.4	3.7	9.4	1.1	12.5	**10.3**
Slovakia	-	-	-	-	-	-	-	**-**
South Eastern Europe								
Albania	-	-	-	-	-	-	-	**-**
Bulgaria	26.2	8.8	13.5	6.8	2.5	2.8	18.3	**7.6**
Romania	21.8	11.6	9.3	4.1	5.4	0.6	-	**7.6**
The Former Yugoslavia								
Bosnia-Herzegovina	-	-	-	-	-	-	-	**-**
Croatia	-	-	34.0	26.3	19.5	8.3	-	**24.3**
FYR Macedonia	-	8.8	9.8	10.2	2.2	5.1	-	**7.3**
Slovenia	23.5	7.7	14.3	-	3.5	1.0	11.5	**7.5**
Federal Republic Yugoslavia	-	-	-	-	-	-	-	**-**
Baltic States								
Estonia	-	12.6	13.7	8.5	4.1	2.2	-	**10.2**
Latvia	-	27.8	30.3	19.4	29.6	6.1	-	**22.6**
Lithuania	-	-	-	-	-	-	-	**-**
Western CIS								
Belarus	-	-	-	-	-	-	-	**-**
Moldova	-	15.3	15.4	15.3	13.3	7.0	-	**14.1**
The Russian Federation	-	-	24.0	23.3	21.7	10.9	-	**21.9**
Ukraine	28.5	11.2	14.8	11.7	12.9	9.5	20.0	**11.8**
Caucasus								
Armenia	-	14.1	17.4	15.1	12.0	10.0	-	**13.6**
Azerbaijan	-	19.4	21.1	17.5	17.9	16.6	21.2	**18.8**
Georgia	-	17.2	23.8	14.4	19.7	10.8	21.2	**17.0**
Central Asia								
Kazakhstan	-	17.3	19.9	20.0	10.7	7.7	14.6	**14.5**
The Kyrgyz Republic	-	18.6	15.3	19.5	8.2	3.7	22.8	**17.0**
Tajikistan	14.9	11.6	10.1	11.4	7.9	5.4	9.4	**10.9**
Turkmenistan	-	-	-	-	-	-	-	**-**
Uzbekistan	-	-	-	-	-	-	-	**-**

Source: ECA Poverty 200 Report, 2000

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